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ABSTRACT

In 1997, Maine's local telephone companies have been required to provide free Internet access to all public schools, which will help to eliminate cost as a prohibitive factor in bringing the Internet to schools. The inservice training and support, however, must be supplied by individual school districts. This study provides an overview of how the University of Southern Maine is helping to prepare both graduate students and teachers for educational technology use. Specifically, it investigates the extent to which graduate students enrolled in the University of Southern Maine's Special Education Department are using computers and the Internet in their classrooms. An original survey was used as the main instrument to measure the use of computers and the Internet; an original World Wide Web page with an electronic version of the survey attached to the site was also available. Research findings suggest that graduate students need to be better educated in the use of computers and the Internet. The fact that 72% of the respondents have Internet access in their schools but use it infrequently underscores the need for more training in this area; on the other hand, it is encouraging that all of the respondents use computers, since persons who use computers are less likely to be computer phobic or unwilling to learn new skills. The survey instrument, as well as seven figures showing results, are appended. (Contains 14 references.) (AEF)

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ED 407 941

Running Head: COMPUTER AND INTERNET USE

Computer and Internet Use Among Special Education Graduate Students

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U.S. DEPARTMENT OF EDUCATION
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Kim V. Attwenger

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC).

Computer and Internet Use Among Special Education Graduate Students

Computers are becoming a part of everyday life. Within the last fifteen years computers have appeared all around us, and in places they never were before. Our cars have computer chips inside them to control emissions. Businesses of all types from veterinary hospitals to restaurants have computer programs that make more efficient use of their time and keep track of inventory. Secretaries in schools keep track of schedules, attendance, and inventory through a network of computers. What does this mean for the field of education? It means that the students of today will need basic computer skills to succeed in the workforce of tomorrow. They will need these skills whether they become mechanics, veterinary technicians, waitresses or secretaries.

Yet many educators may not be trained in the use of computers or the Internet. Most adults over the age of thirty received little or no training in computer programs in High School. Many adults may have missed initial training in computer use. It is these adults who are usually the most apprehensive about starting to use computers now. Without guidance, encouragement, and education individuals might not learn to use computers at all.

In a mainstreamed school, students are usually taught to use computers by a technology teacher in a computer lab. Most high schools offer many different kinds of computer classes, ranging from basic programming to computer architectural design. However, in special education unless the student is mainstreamed, or computer skills are written into their Individualized Education Program (IEP), a computer class can be overlooked. Even when written into an IEP, the purpose is usually not to learn computer skills, but to aid students in tasks that might be difficult for them. For example, students

who have very labored writing which is impeding their ability to complete work might have the use of a computer written into their IEP. This would allow the student to use a word processing program to write papers.

The Internet allows easy and almost instantaneous access to information on any topic. Today, from the comfort of ones own home, a classroom, or a library one can find out information on practically any subject. Some of this information used to take weeks to gather. Let us use an example of planning a unit of curriculum on Native Americans. In the past, a teacher would look for information at the library, in a bookstore, or from a colleague. This could take time, and still yield poor results. Today a teacher only has to visit a site or send e-mail to request specific information. The information that used to take weeks to gather can be found in a day, and gathered directly from the source.

This year, Maine's local telephone companies have been required to provide free Internet access to all public schools. This will help to eliminate cost as a prohibitive factor in bringing the Internet to schools. For the first time all Maine classrooms will be connected to the Internet. However, the inservice training and support is left for individual school districts to supply. This study will provide an overview of how Southern Maine is helping to prepare both graduate students and teachers for the future of education. The topic of this study is to investigate the extent to which graduate students enrolled in the University of Southern Maine's Special Education Department are using computers and the Internet in their classrooms.

Review of the Literature

The literature has much information on the use of computers and the Internet by teachers. Most of the authors (Beaver, 1990; Liu, Reed & Phillips, 1990) cite the need for

teacher education programs to devise new plans to include a level of computer competency in their program requirements. Widmer and Amburgey (1994) state that the California Department of Education has required computer education coursework for all teacher education programs since 1988. Connell and Franklin (1994) suggest that a college or university's success in incorporating computer use into its program should become a part of the reaccreditation process. These are strong words, but the research findings support the idea that colleges and universities are not teaching educators computer skills.

Liu, Reed and Phillips (1990) found that almost half of the teacher education students had no experience using computers, and were apprehensive about using them. Kilian (1996) provides quotations from university educators from across the United States that state they have few if any colleagues that use computers. Beaver (1990) found that approximately one-quarter of elementary education majors had never used a computer. However, when the same elementary education majors were asked to rate the importance of learning to use a computer, 60% said it was important to them. Vockell and Sweeney (1994) studied an Indiana school district that has had great success in bringing computers and technology into their classrooms. The six steps followed by the district are outlined in their paper. Their research cited teachers believing that as they began to use computers more productively, they would develop expertise. These results show that teacher education majors know the importance of using computers in the classroom, but lack the training necessary to combine curriculum with technology.

The concept of content standards in the area of computer skills for teachers is not new. In 1992 the International Society for Technology in Education (ISTE) published a

set of thirteen Foundation Standards. These standards have been adopted by many organizations, and used as a basis for the development of teacher education programs in computer and technology. The National Council for Accreditation of Teacher Education (NCATE) adopted the ISTE standards and included them in their Accreditation Standards (Friske, et al 1996). The ISTE standards cover a wide range of areas: the ability to use computers and software, knowledge of uses of multimedia and productivity tools, the design of student centered learning activities, and application of related technologies to the classroom. The ISTE's Foundation Standards are thorough, yet are also very demanding of the dwindling resources that some teacher preparation programs are facing.

Beider (1993) suggests three fundamental competencies to demonstrate teacher knowledge of computers and technology. The first is the demonstration of word processing skills. This competency shows the user has a general understanding of computers. The second competency is the integration of technology into the curriculum. This competency has a suggested product of an actual lesson plan. The third competency is an implementation plan for the use of technology in the classroom. This set of competencies seems much more manageable, and easily implemented by colleges and university programs. The literature is full of citations that teachers want programs to show them how to use computers effectively, and how to blend that knowledge with their classroom (Beichner, 1993; Friske et al, 1996; Gilmore, 1995).

Gilmore (1995) examined a teacher training program used successfully in New Zealand. There are four components to this program: (1) a classroom based research project, (2) supplementary workshops, (3) sharing information through newsletters, and (4) access to computers. Two things make this program unique. First, the trainers are all

classroom teachers who have experience using computers and technology in their curriculum. Second, the program uses a hands-on approach that integrates computers and the classroom.

Rogan (1996) compiled data on the "Reach for the Sky" telecommunications project. This project gave a group of teachers in the rural mid-western United States Internet access. Many of these teachers had never used the Internet before. Teachers received training at their schools and online. According to the results of this study, most teachers felt the use of computers and the Internet were highly motivational for themselves and their students. Teachers also reported that their lessons were increasingly becoming less teacher directed, and more student centered. Many of these teachers used telecurricular activities. A telecurricular activity is a project that revolves around a certain subject and connects students studying this subject with appropriate Internet resources. For example, students studying Mayan civilizations would connect over the Internet with experts in Central America and ask them questions or request information. Teachers felt projects like these helped to connect their rural classrooms to the global community.

Research Questions

- To what extent are the graduate students in the Special Education Masters Program at USM using computers and the Internet at home and in their teaching?
- How are these special education graduate students using computers and the Internet at home and as an integral part of their teaching?
- To what extent did these students find the Special Education Program's Web page useful?

Method

Sample

All 152 students enrolled in the University of Southern Maine's Special Education Program were mailed a survey. Only 67, or 44% were returned. Most of the surveys (55 or 82%) were returned in the mail of these 7 visited the web site. The rest of the respondents (12 or 18%) completed the electronic version of the survey.

Demographic information about the sample is included in Table 1. Overall, 79% of the respondents were female, and 21% of the respondents were male. When asked if they worked in education, 91% of the respondents said yes.

There was a range of jobs that the respondents held: 42% were special education teachers, 19% were regular education teachers, 10% were resource room teachers and 10% were educational technicians. The other 19% was distributed between substitutes (3%), and one each of the following: administrator, tutors, gifted and talented teacher, speech therapist, and nurse.

Instruments

An original survey was used as the main instrument to measure the use of computers and the Internet. It focused on two topics: to what extent graduate students use computers and the Internet, and to what extent computers and the Internet are used in their teaching. Please refer to Appendix A for a copy of the survey.

Questions were closed-ended, using a six point Likert scale, a "yes or no" or a "check all that apply" format. An space was provided for comments.

An original Web page with an electronic version of the survey attached to the site was also available. The Web page provided two areas for comments. The first area asked

respondents to list any of the links located on the web site that they had visited previously. The second area gave room for any comments the respondent might have had on the web site or the survey.

The author developed the Web page after examining the information that other universities posted on special education. This information was very useful in coursework and teaching. It was the intention of the author to provide a basic Web page consisting of useful links to other sites so that fellow graduate students and professors would be connected to the Internet.

A note asking respondents to complete only one version of the survey was located at the top of both the electronic and the mailed survey. This was done to eliminate the possibility of respondents filling out duplicate surveys.

Procedure

The survey was mailed to the students with a cover letter explaining the project. The cover letter asked respondents to visit the Web page, and use the electronic survey if at all possible. It assured respondents of confidentiality and anonymity.

The electronic survey results were automatically sent to the author's E-mail address through the use of a Common Gateway Interface (CGI) Program. CGI is related to HyperText Markup Language (HTML) which is the language used to write Web pages. It is a program that enables computers using different servers to pass on and view the same information (Weinman, 1996). In other words, whether the respondents had a Macintosh or an IBM Compatible computer, they were able to view the same survey, and respond accordingly.

Data Analysis

The data were entered into the Statistical Program for the Social Sciences. All computations of frequencies and percentages were made using this program.

Results

The first research question asked to what extent the graduate students at the University of Southern Maine use computers and the Internet. When asked if they used a computer, all of the respondents replied that they did. Seventy-six percent (51) of the respondents own a computer. However there are differences in the ways respondents use computers and the amount of time spent using computers.

Table 2 shows the amount of time that the respondents spend using a computer per week. A total of 68% of the respondents (37) use a computer for 0 to10 hours a week.

Seventy-nine percent of the respondents (53) use the Internet. Twenty-one percent (14) said they had never used the Internet. Although this is a high percentage of students who use the Internet, the actual amount of time the 79% of respondents spend using the Internet is quite small. Eighty-two percent (49) responses were "rarely" or "1 to10 times per week." Table 3 shows how frequently graduate students use the Internet.

The amount of time that computers or the Internet are used in the classroom depends on what they are being used for, which will be discussed in the following section. Computers were used more often than the Internet. This is to be expected as the Internet is newer to classrooms and some are not yet linked to the Internet. It is important to note that 72% of the respondents have the Internet at their schools. However, 98% of the respondents have computers in their schools, and 82.5% have computers in their classrooms. An average of 33 computers per school was reported.

The second research question asked how these graduate students are using computers and the Internet both at home and in their teaching.

The questionnaire provided four methods for using the Internet at school: E-mail, research, reinforcement, or "other." Only one respondent chose "other," and specified using the Internet to "generate interest." The results are presented in Figure 1. The results show that of the 72% that do have the Internet, it is not used in school very frequently.

The questionnaire also provided four options for computer use: games, research, reinforcement, and "other." The results are presented in Figure 2. The "other" option was chosen by 58% of the respondents. A total of 11 specified methods were given. Although not statistically significant due to the high percentage of female respondents, it is interesting to note that females seem to use computers in more varied and unique ways than their male counterparts. Figure 3 lists the specified methods of computer use in the classroom, for both male and female respondents. Note that of the 11 methods specified, five of them could potentially be purely for teacher use, and not involve students. These five are: collaboration, word processing, teacher use, paperwork, and consultation.

A separate question asked "how do you use your computer?" Six choices were listed and the respondents were asked to choose all options they used. The six choices were: E-mail, personal finance, grade book, spreadsheets, tests, and word processing. The results for this are presented in Figure 4. As can be expected, an overwhelming majority chose word processing.

The third research question asked to what extent the students found the Special Education Program's Web page useful. As stated previously, only 28% of respondents (19) visited the Web page. This is a dishearteningly small number. Yet, there is good

news. Of these 19, all of them liked the appearance, organization, information, and links on the site. All of them found the links and information useful, and 71% found the help page useful.

Many of the respondents wrote comments, all of which praised the Web site. Comments included the following:

> "Been to other University educational sites, and it's nice to see that USM has a fine one like this."
>
> "Well done, a very useful addition to the Special Education Program at USM! Thanks, I plan on using this site a lot."
>
> "It is awesome."
>
> "This site is nicely put together and contains helpful links for educators. Thanks."
>
> "Nice work, this is a wonderful way of connecting with one another. Thanks."
>
> "Great idea! We needed something like this for a long time!"

The questionnaire also asked whether students would be interested in taking courses at the University on the Internet, and integrating computers and the Internet into curriculum. An overwhelming majority of students responded affirmatively: 88% wanted a course on integrating computers and the Internet with curriculum, and 85% wanted a course on the Internet.

Conclusions

Although the sample size was small, the research findings point out a need for the graduate students enrolled in the University Of Southern Maine's Special Education Masters Program to be better educated in the use of computers and the Internet. The fact that 72% of the respondents have Internet access in their schools, but use it infrequently shows a need for more training in this area. While not surprising, since the Internet is new

to some classrooms and schools, this lack of use of the Internet is disheartening. The data shows that 92.5% of the respondents only use the Internet "rarely" or "1 to10 times" per week. This is hardly enough time to regularly check an E-mail account. This is an area that needs attention. As stated previously, some schools do not have Internet access. This is one reason why many educators may not be familiar with it, yet the Internet will soon be a part of every school. Educators need to learn how to use it so they can facilitate its use in the classroom.

The fact that all of the respondents use computers is encouraging, since persons who use computers (even if only for word processing) are less likely to be computer phobic. This leads me to believe that with the right training, these students can learn to use computers more frequently in their classroom. It is important for the use of computers in the classroom to increase in a variety of ways, since computer uses in our society are increasing in a variety of ways. The findings also show that students want to see such training offered by the University, and therefore realize it is an area in which they need more training.

The results of this research point to the need for more training in the use of computers and the Internet. The students at the University of Southern Maine have expressed their desire for support in this area of education. Eighty-eight percent of the students surveyed wanted a course on integrating computers and the Internet with curriculum. Eighty-five percent wanted a course on the Internet. These results show that the students realize the importance of these areas in the future of education. It is also true that we cannot depend on local school districts, some of which are very small, to provide adequate training in the use of the Internet in the classroom.

Ongoing research in this field is needed to establish whether colleges and universities are providing the training that the teachers of the future will need in the area of technology. Universities and their staff must become comfortable in the use of computers and the Internet in their programs. This integration of technology and the University curriculum will help the teacher education student to experience technology as an integral part of the classroom and curriculum.

Unfortunately only 28% of the respondents used the Web site. The Internet is not easy to use initially. It does take a certain amount of experimentation. The Web site was designed for two purposes. The first is to aid students in their own research. It is the belief of the author that if graduate students could learn how to access the Internet and use it successfully for their own research, they would be more likely to use it in their own classrooms. The second purpose for its design was to help those students who had no prior Internet experience by creating an easy to use web site. By providing a useful place to visit and discover information, it was hoped that new users would have a positive experience, and continue to use the Internet. The positive responses the author received from those who visited the site is both encouraging and rewarding.

Limitations of the Study

The study has a few limitations. First, with mailed surveys it is not uncommon to have a poor response rate. According to Bourque and Fielder (1995), a 20% response rate is common. In this case, I attained a 44% response rate. However, this is a very small sample. This creates problems when interpreting and generalizing the results. The sample is also of a very specific nature, and therefore not representative. These are all graduate

students in enrolled in one University program. A generalization to other populations of teachers, or graduate students in other programs is not advisable.

The second, and most troublesome problem is that respondents who are more comfortable with computers are probably more likely to want to visit the Web page and respond to the survey. I am unsure how to combat this limitation of the study. This would assume that most of the 56% of respondents that did not return their surveys are not computer users. As a better than average response rate was achieved, it is hoped that the effect of this problem is minimal.

The third limitation is the use of an original survey tool. As this tool has never been used, there is the potential for difficulties in the areas of reliability or validity. To try and compensate for this, content validity was established by a thorough review of my survey by a class of my peers and professor.

References

Barkume, M. (1993). Computers: Instruments of change. Occupational Outlook Quarterly, Winter, 3-17.

Beaver, J. F. (1990). A profile of undergraduate educational technology (In) competence: Are we preparing today's education graduates for teaching in the 1990's? (ERIC Document Reproduction Service No. ED 332 985)

Beichner, R.J. (1993). Technology competencies for new teachers: Issues and suggestions. Journal on Computing in Teacher Education, 9 (3), 17-20.

Bourque, L. B. & Fielder, E. P. (1995). How to conduct self-administered and mail surveys. Thousand Oaks, CA: Sage Publications.

Christmas, O. L. (1992). Use of technology by special education personnel. Lansing, MI: Michigan State Department of Special Education. (ERIC Document Reproduction Service No. 350 743)

Connell, T. H. & Franklin, C. (1994). The Internet: Educational issues. Library Trends, 42 (4), 608-625.

Friske, J., Knezek, D., Taylor, H., Thomas, L., & Wiebe, J. (1996). ISTE's technology foundation standards for all teachers: Time for a second look? Journal of Computing in Teacher Education, 12 (2), 9-12.

Gillmore, A.M. (1995). Turning teachers on to computers: Evaluation of a teacher development program. Journal of Research in Computing in Education, 27 (3), 251-269.

Kilian, C. (1996). The culture gap among educators. Technos, 3 (1), 24-25.

Liu, M., Reed, W. M., & Phillips, P. D. (1990). Teacher education students and computers: Gender, major, use, occurrence, and anxiety (ERIC Document Reproduction Service No. 324 338)

Rogan, J.M. (1996). Rural teachers meet the Internet. Journal of Computing in Teacher Education, 12 (3), 21-25.

Vockell, E., & Sweeney, J. (1994). How do teachers who use computers competently differ from other teachers? Journal of Computing in Teacher Education, 10 (2), 24-31.

Weinman, W. E. (1996). The CGI book: The complete world wide web programming reference. Indianapolis: New Riders Publishing.

Widmer, C.C., & Amburgey, V. (1994). Meeting technology guidelines for teacher preparation. Journal of Computing in Teacher Education, 10 (2), 12-17.

Appendix A

Computer Survey

Urgent! Please return by March 3rd!

Please fill out the following information.

1. Are you male____ or female___?
2. Age:_____
3. Do you work in the field of education? yes_____ no_____
4. How many years have you worked in the field of education?_____

If no, please skip to question 5

4.a. What is your current job title?_____

4.b. Are there any computers in the school where you are employed? yes___ how many_____ no___ don't know____

4.c. Are there any computers in your classroom?
yes____ no____ don't know____

4.d. Is there Internet access on your schools computers?
yes____ on how many?____ no____ don't know____

4.e. Do you use computers as a supplement to your curriculum?
Please check all that apply: 1 is never, 6 is always

☐games 1 2 3 4 5 6 ☐reinforcement 1 2 3 4 5 6 ☐ research 1 2 3 4 5 6 ☐ other _____ (please specify) 1 2 3 4 5 6

4.f. Do you use the Internet as a supplement to your curriculum?
Please check all that apply: 1 is never, 6 is always

☐ research 1 2 3 4 5 6 ☐ e-mail 1 2 3 4 5 6 ☐ reinforcement 1 2 3 4 5 6 ☐ other_____ (please specify) 1 2 3 4 5 6

5. Have you ever used a computer? yes_____ no_____
6. Do you own a computer? yes_____ no_____

If no, please skip to question 7

6.a. How many hours do you use a computer per week?

0-5 hours____	6-10 hours____	11-15 hours____	16-20 hours____	More than 20 hours_____

6.b. How do you use your computer? Please check all that apply.

☐ grade book ☐ test scoring ☐ e-mail ☐ personal finance
☐ word processing ☐ spread sheets

7. Have you ever used the Internet? yes_____ no_____

If no, please skip to question 8

7.a. If yes, how often do you use the Internet per week?

Rarely____ 1-10 times ____ 11-20 times____
21-30 times ____ More than 30 times ____

8. Would you like to see a course on how to use the Internet in Special Education Curriculum research offered by this program?

yes_____ no_____

9. Would you like to see a course on how to integrate computers and the Internet in your curriculum offered by this program?

yes_____ no_____

The following questions pertain specifically to the evaluation of the University of Southern Maine's Special Education Web Site. If you chose not to visit the web site, you do not need to answer the following questions.

1. What did you find useful about this site?
   ☐ links ☐ information ☐ help page
2. Have you ever used any of the resources presented in the web site before? Yes____ No____

If yes, please list which sites._____

_____

_____

3. What did you like about the web site? Please check all that apply.
   ☐ links ☐ appearance ☐ organization ☐ information

Comments:

Table 1

Demographic Information about the Sample Population

Gender	Sample Size (n)	% of Sample	Mean Age	Mean Years Working in Education
Male	14	21	35	6
Female	52	78	36	7
Missing	1	1	35	13

Note. Total sample size is 67.

Table 2

Computer Use among Graduate Students

	Amount of Time Per Week				
	0-5 Hours	6-10 Hours	11-15 Hours	16-20 Hours	20+ Hours
Percent Of Responses	35.2	33.3	16.7	9.3	5.6

Total 100.

Note. The values represent the valid percent of total population.

Table 3

Internet Use among Graduate Students

	Amount Of Time Per Week				
	Rarely	1-10 Times	11-20 Times	21-30 Times	30+ Times
Percent Of Responses	43.4	49.1	5.7	0	1.9

Total 100.

Note. The values represent the valid percent of total population.

Figure Captions

Figure 1. The frequency of use of the Internet for e-mail, research, and reinforcement among graduate students.

Figure 2. The frequency of use of computers for games, research, and reinforcement among graduate students.

Figure 3. Specified methods of computer use among male and female graduate students.

Figure 4. Ways graduate students use computers.

Figure 1

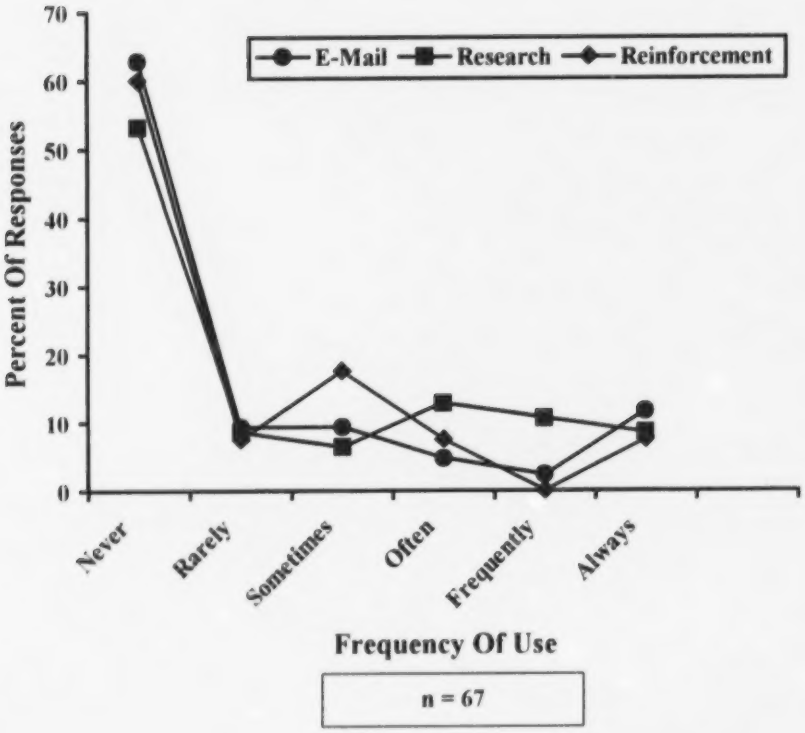
E-Mail
Research
Reinforcement
Percent Of Responses
70
60
50
40
30
20
10
0
Never
Rarely
Sometimes
Often
Frequently
Always
Frequency Of Use
n = 67

Figure 2

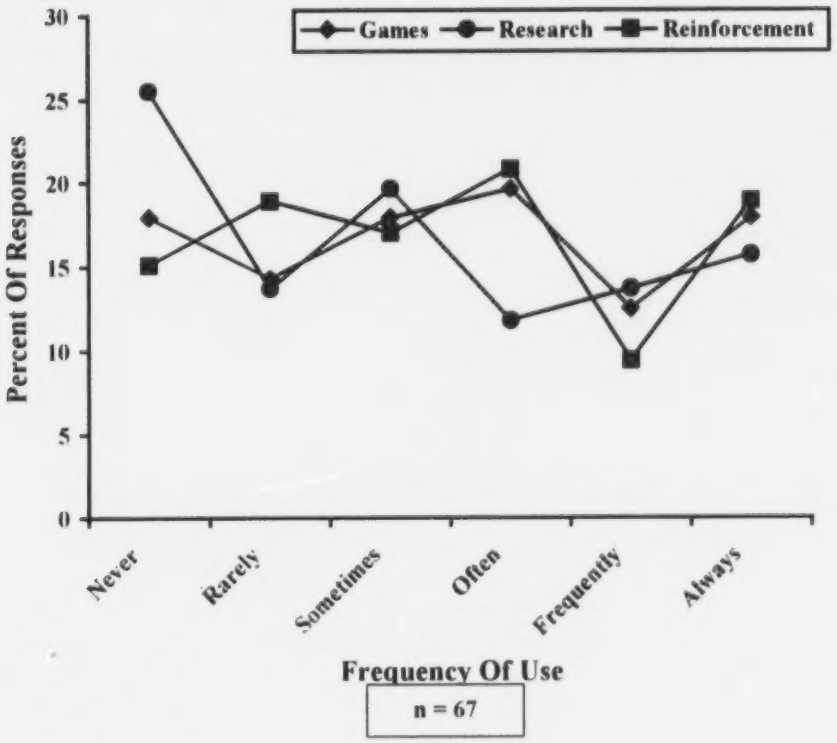
Games
Research
Reinforcement
30
25
20
15
10
5
0
Percent Of Responses
Never
Rarely
Sometimes
Often
Frequently
Always
Frequency Of Use
n = 67

Figure 3

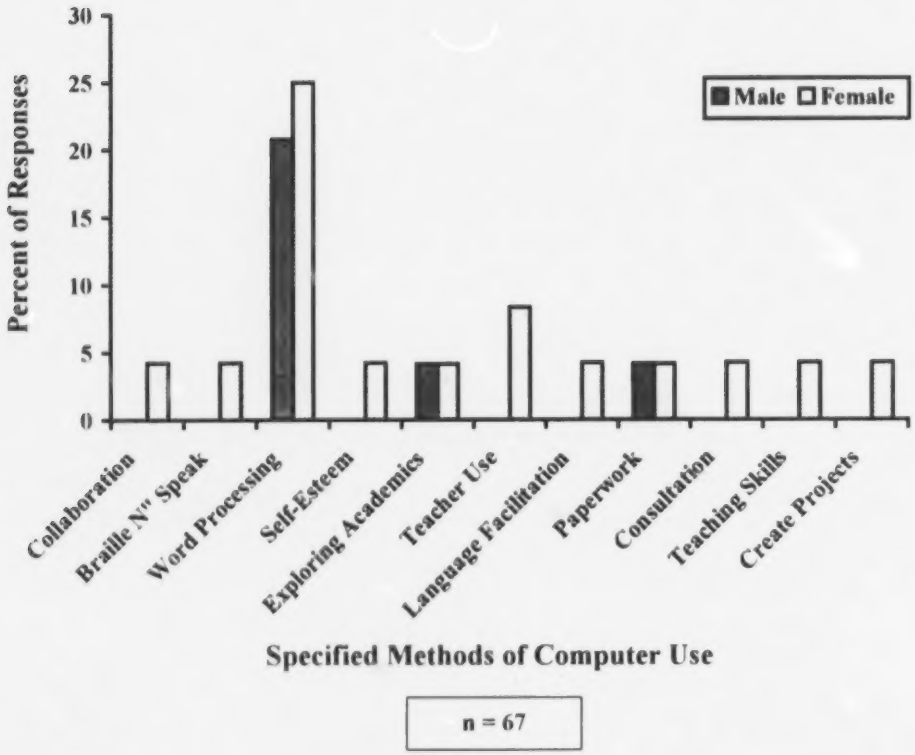

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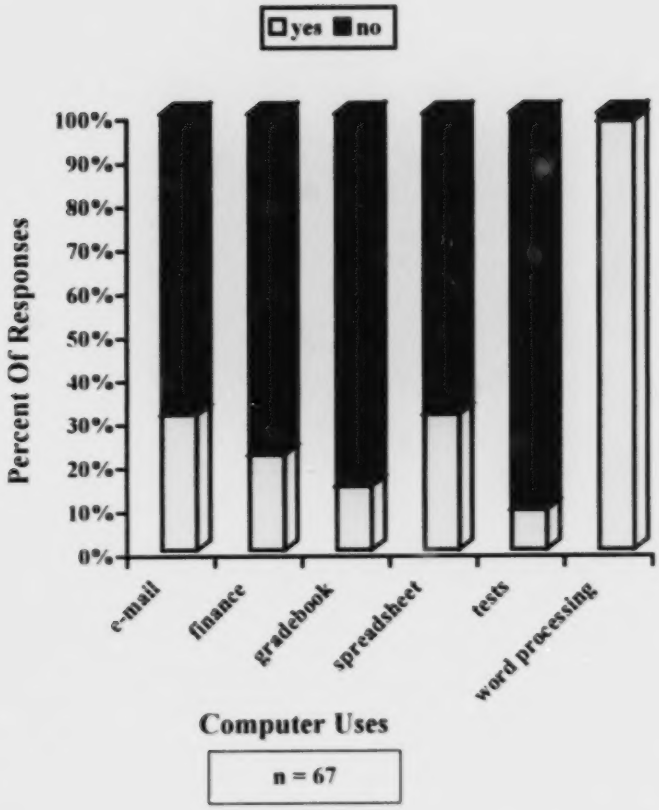
Figure 4


yes
no
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
Percent Of Responses
e-mail
finance
gradebook
spreadsheet
tests
word processing
Computer Uses
n = 67